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Job No.: CTCE/BBMP/MS/W.No.09/WMM/Gradation/2017-18 03.04.2017

TEST REPORT ON GRADATION OF WET MIX MACADAM

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan,** #830, 5th Block, BEL layout, Vidyaranyapura, Bangalore - 560 097.
* Name of Work	:	Filling of pot holes in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/251/2016-17 Dated: 30.03.2017
Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS 2386 (part-1)1963 (RA-2011)
Date of Testing	:	03.04.2017

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits As per Morth Table 400-13
53	0	0	0	100	100
45	135	135	2.7	97.3	95-100
22.4	1620	1755	35.10	64.90	60-80
11.2	1030	2785	55.70	44.30	40-60
4.75	590	3375	67.50	32.50	25-40
2.36	520	3895	77.90	22.10	15-30
0.600	540	4435	88.70	11.30	8-22
0.075	415	4850	97.00	3.00	

*Information is furnished by the Customer/Representative.

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Date of Testing	:	05.04.2017

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits As per Morth Table 400-13
53	0	0	0	100	100
45	105	105	2.1	97.9	95-100
22.4	1580	1685	33.70	66.30	60-80
11.2	1020	2705	54.10	45.90	40-60
4.75	595	3300	66.00	34.00	25-40
2.36	535	3835	76.70	23.30	15-30
0.600	520	4355	87.10	12.90	8-22
0.075	420	4775	95.50	4.50	0-8

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Job No.: CTCE/BBMP/MS/W.No.09/WMM/AIV/2017-18 03.04.2017

TEST REPORT ON IMPACT VALUE OF AGGREGATE

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan,** #830, 5th Block, BEL layout, Vidyaranyapura, Bangalore - 560 097.
* Name of Work	:	Filling of pot holes in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/251/2016-17 Dated: 30.03.2017
* Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS : 2386(Part -4)-1963 (RA-2011)
Date of Testing	:	03.04.2017

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	383	388	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299	302	
4	Aggregate Impact value = percent fines 100* (W2/W1)%	21.93	22.16	22.05

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/MS/W.No.09/WMM/Shape.T/2017-18 03.04.2017

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan,** #830, 5th Block, BEL layout, Vidyaranyapura, Bangalore - 560 097.
* Name of Work	:	Filling of pot holes in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/251/2016-17 Dated: 30.03.2017
* Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS 2386(Part 1) 1963 (RA 2011)
Date of Testing	:	03.04.2017

Sl.No.	Description	Result
1	Flakiness Index	12.52%
2	Elongation Index	13.82%
3	Combined Flakiness & Elongation Index	26.34%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/MS/W.No.09/BC/AIV/2017-18 13.04.2017

TEST REPORT ON IMPACT VALUE OF AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan,** #830, 5th Block, BEL layout, Vidyaranyapura, Bangalore - 560 097.
* Name of Work	:	Filling of pot holes in Ward No.09, Vidyaranyapura Sub Division, BBMP,
* Reference	:	BBMP/EE/BTP/WO/251/2016-17 Dated: 30.03.2017
* Sample ID	:	Hot mix plant, Bangalore.
* Type of Mix	:	Bituminous Concrete
Technical Reference	:	IS: 2386 (Part- 4)-1963 (RA-2011)
Date of Testing	:	13.04.2017

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	388	392	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	304	306	
4	Aggregate Impact value = percent fines 100* (W2/W1) percent	21.65	21.94	**21.79**

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Job No.: CTCE/BBMP/MS/W.No.09/BC/Shape.T/2017-18 13.04.2017

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan,** #830, 5th Block, BEL layout, Vidyaranyapura, Bangalore - 560 097.
* Name of Work	:	Filling of pot holes in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/251/2016-17 Dated: 30.03.2017
* Sample ID	:	Hot mix plant, Bangalore
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	13.04.2017

Sl.No.	Description	Result
1	Flakiness Index	12.15%
2	Elongation Index	13.25%
3	Combined Flakiness & Elongation Index	25.40%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/MS/W.No.09/BC/Stripping/2017-18 13.04.2017

TEST REPORT ON STRIPPING VALUEOF ROAD AGGREGATES (STATIC IMMERSION TEST)

*** Customer**	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
*** Agency**	:	**Mr. Madhusudan,** #830, 5th Block, BEL layout, Vidyaranyapura, Bangalore - 560 097.
*** Name of Work**	:	Filling of pot holes in Ward No.09, Vidyaranyapura Sub Division, BBMP,
*** Reference**	:	BBMP/EE/BTP/WO/251/2016-17 Dated: 30.03.2017
Technical Reference	:	IS: 6241
*** Type of Mix**	:	Bituminous Concrete
Date of Testing	:	13.04.2017

Type of binder : 80/100
Percentage of binder used : 5.00% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.00 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.1	3.20	96.80
2	3.2		
3	3.3		

*Information is furnished by the Customer/Representative.

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/MS/W.No.09/BC/Sp_Wa/20017-18 13.04.2017

TEST REEPORT ON SPECIFIC GRAVITY AND WATER ABSORPTION

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan,** #830, 5th Block, BEL layout, Vidyaranyapura, Bangalore - 560 097.
* Name of Work	:	Filling of pot holes in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/251/2016-17 Dated: 30.03.2017
* Sample ID	:	Hot mix plant, Bangalore
Technical Reference	:	IS : 2386(Part -3)-1963 (RA-2011)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	13.04.2017

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2008	2009	2010	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1239	1238	1255	
4	Weight of saturated surface dry aggregate in air	W_3 g	2007	2006	2008	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	768	768	753	
6	Weight of oven dried aggregate	W_4 g	1999	2000	1998	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.603	2.604	2.653	2.620
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.630	2.625	2.689	2.648
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.40%	0.30%	0.50%	0.40%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

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Job No: CCTCE/BBMP/MS/W.No.09/BC/Bitumen/2017-18 13.04.2017

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

As per IS2386 and IRC:SP:11-1984

* Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
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* Name of Work	Filling of pot holes in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	BBMP/EE/BTP/WO/251/2016-17 Dated: 30.03.2017
* Sample ID	Pot hole filling to roads in Ward No.09.
DATE OF TESTING	13.04.2017

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	470	469
3. Weight of Asphalt and Mineral matter Extracted, g	30	31
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	30	31
7. Bitumen content in %	6.00	6.20
8. Average	**6.10**	

GRADATION AFTER EXTRACTION

TABLE - 1

SIEVE SIZE	Percent Passing, %		JOBMIX
mm	Sample 1	Sample 2	Gradation
19	100.00	100.00	100
13.2	85.55	86.38	79-100
9.5	79.28	82.35	70-88
4.75	58.59	60.23	53-71
2.36	44.15	46.35	42-58
1.18	38.25	39.25	34-48
0.6	28.55	27.15	26-38
0.3	21.33	22.36	18-28
0.15	15.65	16.95	12-20
0.075	6.32	7.15	4-10

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